Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1.   (Currently Amended) A router selecting method in a local area network which includes plural routers that perform relay with an external network, the router selecting method comprising:

a step in which each router in the same segment periodically multicasts a multicast packet including its own identifier;

a router selecting step in which a router selects the destination to which it shall forward a data packet among the other routers in the same segment, on the basis of information included in the multicast packets received from the other routers in the same segment;

a step in which each of the routers determines in accordance with conditions determined in advance whether it shall relay the data packet, received from a node or a router in the same segment, to another segment;

a forwarding step in which, if the router which has received the data packet does not relay the data packet to another segment, the router performs redirection specifying the selected router as the relay destination to the source node or router which originally sent the data packet and forwarding the data packet to the specified router or discarding the data packet; and

a step in which the source node which has received the redirection transmits the data packet and subsequent data packets to the specified router,

wherein the transferring step is repeated until the data packet is received by a router which can relay the data packet.

2.   (Currently Amended) A router selecting method in a local area network including plural routers that performs relay with an external network, the router selecting method comprising:

a step in which each router in the same segment periodically multicasts a multicast packet including its own identifier;

a step in which a router selects the destination to which it shall forward a data packet among the other routers in the same segment, on the basis of information included in the multicast packets received from the other routers in the same segment;

a step in which each of the routers determines in accordance with conditions determined in advance whether it shall relay the data packet, received from a node or a router in the same segment, to another segment;

a step in which, when the router determines that it shall not relay the received data packet to another segment, the router transfers the data packet to the selected router;

a step in which, when the router relays the received data packet to another segment, if the data packet is not directly received from the source node which is the source of the received data packet but is a forwarded packet which is forwarded from another router, the router transmits the information of reporting relay indicating that the router is capable of relaying the forwarded packet, to the forwarding router which forwarded the packet; and

a step in which, when the forwarding router receives the information of reporting relay, the forwarding router judges whether it is the original router that has forwarded the data packet specified in the information of reporting relay, and, if it is the original router that has forwarded the data packet, the router transmits a redirection message which specifies the router capable of relaying a data packet to the source node which sent the data packet and, if it is not the original router that has forwarded the data packet specified in the information of reporting relay, transfers the information of reporting relay to the previous router that forwarded the data packet.

3.   (Currently Amended)   A router selecting method according to claim 1 or 2, characterized in that the information described in the multicast packet of each of the routers in the router selecting method according to the invention is the identifier of that router.

4. (Currently Amended) A router selecting method according to claim 3, characterized in that the order of selecting routers in the router selecting step is determined ~~solely based upon information included in~~by using only the multicast packets including of a flag to indicate that this packet is for selecting a router.

5. (Currently Amended) A router selecting method according to claim 1 ~~or 2~~, characterized in that the order for selection of router is updated according to addition of routers in the same segment or removal of routers from the same segment.

6. (Original) A router selecting method according to claim 5, characterized in that the multicast packet is periodically transmitted from each of the routers and, when a multicast packet is received from a router from which a packet has not ever been received, the router is appended to the order as a router added to the same segment.

7. (Original) A router selecting method according to claim 6, characterized in that, when a multicast packet from a specific router is not transmitted for a predetermined time, the specific router is deleted from the order as a router removed from the LAN.

8. (Original) A router comprising:

a multicast packet transmitting unit that periodically multicasts a multicast packet including its own identifier;

a relay determining unit that determines in accordance with a condition specified in advance whether it relays a data packet received from a node or a router in the same segment for being relayed to another segment to a router in the segment;

an order determining unit that selects a router to forward the data packet among the other routers in the same segment, on the basis of information included in the multicast packets received from the other routers in the same segment; and

a packet relaying unit that discards or forwards the data packet to the router selected by the order determining unit and notifies the source of the data packet of the selected router as a

router responsible of relaying data packets when the packet relaying unit receives a notification that the data packet is determined not to be relayed from the relay determining unit.

9.   (Original) A router comprising:

a multicast packet transmitting unit that periodically multicasts a multicast packet including its own identifier;

a relay determining unit that determines in accordance with a condition specified in advance whether it relays a data packet received from a node or a router in the same segment for being relayed to another segment to a router in the segment;

an order determining unit that determines the router to forward the data packet among the other routers in the same segment on the basis of information included in the multicast packets received from the other routers in the same segment;

a packet relaying unit that transfers the data packet to the router selected by the order determining unit in response to a notice that the relay determining unit doesn't relay the data packet from the relay determining unit and, if the source of the data packet is a node, stores at least a packet identifier, which identifies the data packet, and a device identifier, which identifies the source of the data packet, and binds the two identifiers in a header information storage unit;

a relay report constructing unit that constructs a relay report message, which reports that it decides to relay the data packet, according to a request from the packet relaying unit; and

a relay report transferring unit that transfers the relay report message received from other router to the router from which the data packet is forwarded,

wherein when the data packet indicated in the relay report message received from another router, is same as the data packet which information is already stored in the header information storage unit, the router notifies the source node identified by the device identifier of the router which decides to relay the data packet.

10.   (Currently Amended) A router according to claim 8~~or 9~~, characterized in that the order determining unit determines the order for selection of routers using the identifiers included in the multicast packet.

11.   (Original) A router according to claim 10, characterized in that the order determining unit determines the order for selection of routers also using flag information included in the multicast packet.

12.   (Original) A router according to claim 11, characterized in that the order determining unit has an order updating unit that adds a router to the selection order when a multicast packet is received from a router not included in the selection order and, when a multicast packet is not received from a router included in the selection order during a predetermined time, deletes the router from the selection order.

13.   (Currently Amended) A router according to claim 8~~or 9~~, characterized in that the condition is the type of the data packet, the congestion state in the router, the transmission capability, the number of times the relay determining unit has determined not to relay the data packet, or communication cost, or a combination thereof.

14.   (New) A router selecting method according to claim 2, characterized in that the information described in the multicast packet of each of the routers in the router selecting method according to the invention is the identifier of that router.

15.   (New) A router selecting method according to claim 14, characterized in that the order of selecting routers in the router selecting step is determined by using only the multicast packets including of a flag to indicate that this packet is for selecting a router.

16.   (New) A router selecting method according to claim 2, characterized in that the order for selection of router is updated according to addition of routers in the same segment or removal of routers from the same segment.

17.   (New) A router selecting method according to claim 16, characterized in that the multicast packet is periodically transmitted from each of the routers and, when a multicast

packet is received from a router from which a packet has not ever been received, the router is appended to the order as a router added to the same segment.

18.   (New) A router selecting method according to claim 17, characterized in that, when a multicast packet from a specific router is not transmitted for a predetermined time, the specific router is deleted from the order as a router removed from the LAN.

19.   (New) A router according to claim 9, characterized in that the order determining unit determines the order for selection of routers using the identifiers included in the multicast packet.

20.   (New) A router according to claim 10, characterized in that the order determining unit determines the order for selection of routers also using flag information included in the multicast packet.

21.   (New) A router according to claim 19, characterized in that the order determining unit has an order updating unit that adds a router to the selection order when a multicast packet is received from a router not included in the selection order and, when a multicast packet is not received from a router included in the selection order during a predetermined time, deletes the router from the selection order.

22.   (New) A router according to claim 9, characterized in that the condition is the type of the data packet, the congestion state in the router, the transmission capability, the number of times the relay determining unit has determined not to relay the data packet, or communication cost, or a combination thereof.